CASTLE STREET, BRAY

Landscape Design Statement

Castle St, Ravenswell, Bray, Co. Wicklow

April 2022

Applicant: Silverbow Limited.

Bray sea side promenade, circa 1960

CONTENTS

LANDSCAPE ANALYSIS
Site Context

The Site is located in Bray, Co. Wicklow. The proposed development is easily accessible by the N11 national road and only a 10 minute walk from Bray's Main Street, DART station and seafront. Dublin City centre is easily accessible by train or car.

The River Dargle runs through the town and exits in Bray Harbour.

There are supermarkets, schools and amenity all within walking distance from the site.

Bray's seafront offers a choice of restaurants, pubs and hotels on Strand Street as well as a stone beach and harbour. Bray head is a popular walking/hiking destination and provides spectacular views. At the foot of Bray Head there is a very popular Bray to Greystones cliff walk.

The town in Bray offers shops and restaurants and is a transport hub with bus routes and a train station. The "Carlisle Stadium" is home to Bray Wanderers Football Club and is an important part of the community. There are multiple golf courses and other amenities in the area such as the popular aquarium "Sealife".

Bray Main Street

Bray Head

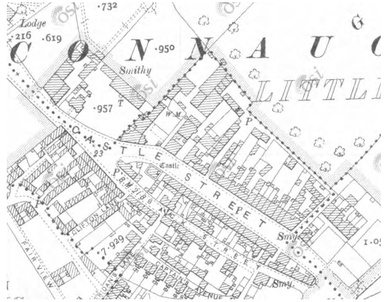
Bray Beach

Bray Harbour

LANDSCAPE ANALYSIS
Site Identity

Bray Esplanade c.1900

Smithy c.1888 formerly on site



Historic 25 Inch Map (1888-1913)

Contextual Character

Bray - Seaside Town

Located in Wicklow "The Garden of Ireland"

Bray's earliest history shows there are traces of Bronze age (2,300 to 600 BC) settlements in the area. There is also evidence of visits to Bray by Romans, possibly from Britain, circa the first century BC.

Bray's history is well documented from Norman times. The town would have developed around the manor created by Riddlesford consisting of a castle, a church and a mill. The history of the town is also intertwined with the history of the Brabazon Family of Killruddery, Edward Baron Ardee was granted Killruddery by James Ist in 1619.

The development of the town that we see today is largely attributed to William Dargan a railway entrepreneur in the 19th Century. Thanks to the arrival of the railway in 1834, the bustling town developed as a popular seaside resort and became known as the "Brighton of Ireland".

Historic maps show that the site was formerly occupied by a blacksmith circa 1888.

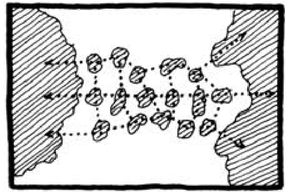
The character of the site can be drawn from its location next to the sea but also from the fact it is located in Co. Wicklow, home to many gardens, such as Mount Usher gardens. The county itself is known as the garden of Ireland.

Green Infrastructure (GI) is based on the principle that 'protecting and enhancing nature and natural processes [...] are consciously integrated into spatial planning and territorial development'. Accordingly, the Green Infrastructure Strategy defines GI as 'a strategically planned network of natural and semi-natural areas with other environmental features designed and managed to deliver a wide range of ecosystem services' in both rural and urban settings (EC, 2013a).

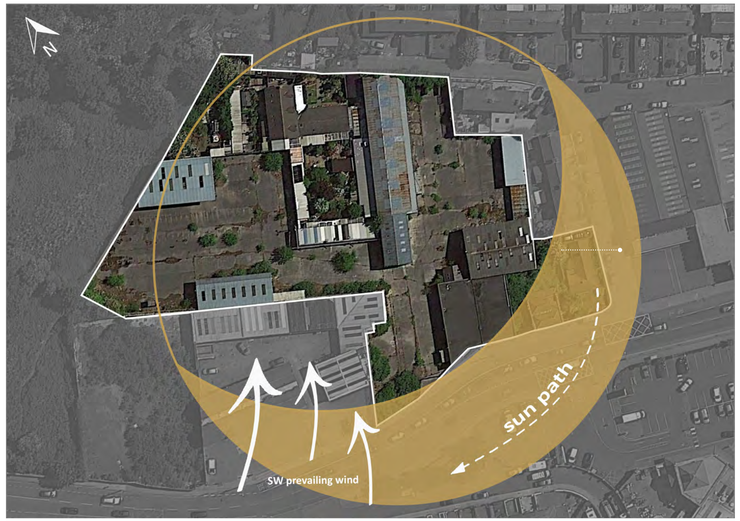
In contrast to the most common 'grey' (man-made, constructed) infrastructure approaches that serve one single objective, GI promotes multifunctionality, which means that the same area of land is able to perform several functions and offer multiple benefits if its ecosystems are in a healthy state. More specifically, GI aims to enhance nature's ability to deliver multiple valuable ecosystem goods and services, potentially providing a wide range of environmental, social, climate change adaptation and mitigation, and biodiversity benefits.

It is proposed that the development seamlessly ties into the existing green infrastructure network in Bray and it's surroundings. As the site is currently a brown-field site, the landscape proposals which include native tree and planting mixes will result in a net gain for ecology, habitat and bio-diversity, boosting the green infrastructure network and improving quality of life.

The development will become habitual for flora and fauna, and also become a stepping stone in the green infrastructure network, connecting Bray Head, Seafront and Surrounding lands to the West. The River Dargle and a green belt of trees which run through the town provide ecological corridors for the town.

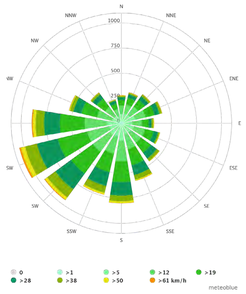


LANDSCAPE ANALYSIS
Micro-climate



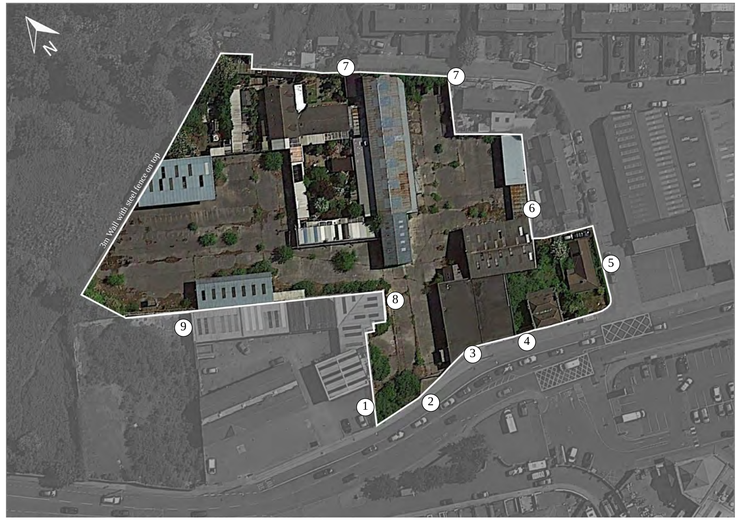
Micro-climate

The neighbouring property on the southern boundary provides some shelter from the prevailing south westerly winds, however with no existing trees on site it remains reasonably open to winds from most directions.



Average wind direction and speed for Dublin 2019-2020

LANDSCAPE ANALYSIS
Existing Boundary Conditions



The boundary conditions across the site vary considerably. There are scenarios in the site where buildings form a boundary. A full set of proposed boundary condition drawings is submitted within the Landscape Drawing Set at Stage 2 and Stage 3 of the SHD process.

Low brick wall with steel fence

Steel fence

Boundary - Existing building

Steel Gate

Low stone wall with railing

Block wall

4m wall with steel fencing

3m wall with barbed wire

2.7m brick wall + building

LANDSCAPE ANALYSIS
Existing Views

Existing views of the site from Castle Street and Dwyer Park

View Point 1

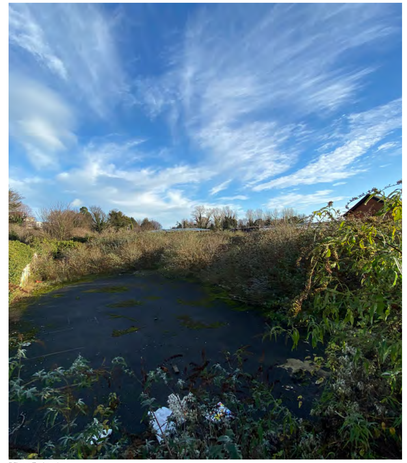
View Point 2

View Point 3

View Point 4

LANDSCAPE ANALYSIS
Existing Levels and Vegetation

There are no existing trees on site, the only existing vegetation appears to be overgrown scrub which will be removed. There is an existing field with some mature trees to the north of the site. It is reasonably flat across the site with falls from north to south.



View Point 1

LANDSCAPE VISION

Foreseeing the Concept

1. Coastal Ecology

The design aims to provide a palette of coastal planting which will thrive in its natural surroundings. The coastal planting mix aims to give life and colour to the scheme adding to the character of the space. Soft landscape areas will also enhance biodiversity and support sustainable urban drainage systems.

Planting

2. Industrial Heritage

Historic maps show that the site was formerly occupied by a blacksmith circa 1888. The design aims to reflect this through the carefully selected hard materials palette. Chunky timber and steel will be subtly incorporated into the landscape where appropriate, paying homage to the industrial heritage of the site and surrounding area.

Hardscape

3. A Day at the Beach

The design is packed with programme, aiming to provide a splash of colour, activity and fun within the landscape, reminiscent of a sunny day at the nearby Bray Strand.

Programme

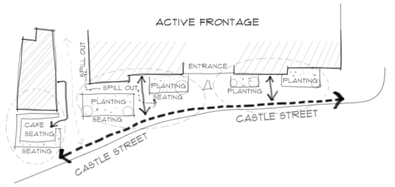
LANDSCAPE DESIGN STRATEGY

Landscape Design Approach

1. Active Frontage

The architecture and landscape act in unison to provide a strong active frontage onto Castle Street. The streetscape will be dramatically improved with the addition of planters, street tree planting and pocket spaces nestled within providing opportunities to pause and sit. There are also opportunity for commercial spill out and F+B tables and chairs.

Castle Street



2. Seeing Green

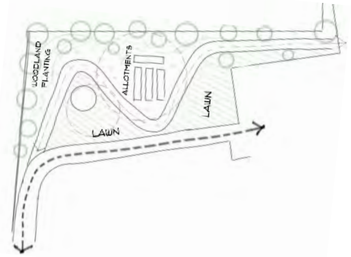
The scheme will be heavily planted, providing as much green areas as possible, enhancing biodiversity and carbon sequestration. Tree planting will frame the architecture within the context as well as providing green corridor routes throughout the site, allowing people feel closer to nature.

Planting

3. Community Gardens

There are two community gardens, North and South of the development. Community gardens provide an outdoor area for people to socialise, relax and contemplate in peaceful surroundings. The community gardens can be programmed with BBQ facilities as well as allotment gardens for planting and growing food, lawn space for yoga and other activities.

Programme

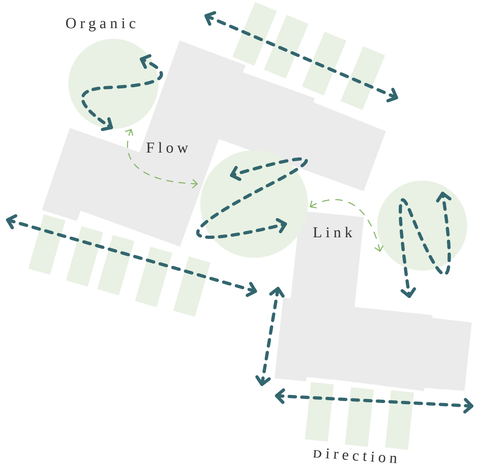


Unity + Identity - Coastal Plant Palette

LANDSCAPE DESIGN STRATEGY - CONCEPT DIAGRAM

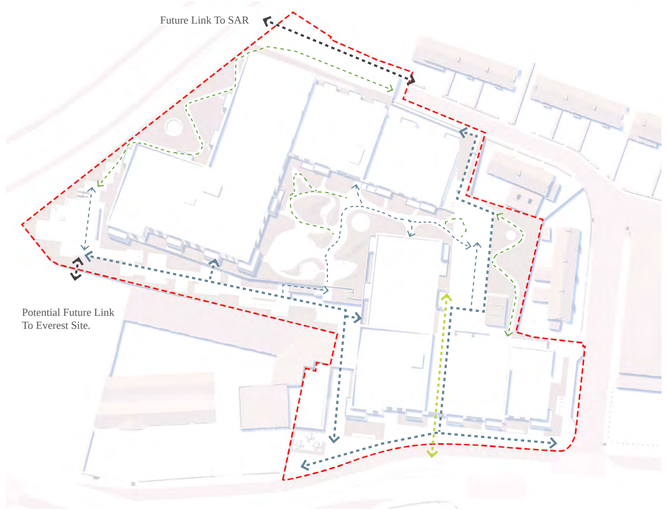
Landscape Design Approach

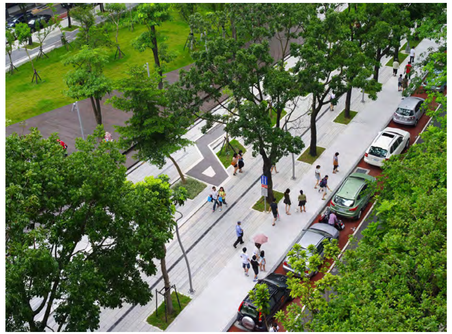
Geometric vs. Organic



LANDSCAPE DESIGN STRATEGY

Circulation





Castle Street provides the primary pedestrian access to the development, as well as vehicular access to the basement car park. There are a number of secondary and tertiary pedestrian paths available to residents throughout the landscape on ground floor and podium level.

Legend

- Main Pedestrian Route
- Secondary Pedestrian Route
- Tertiary Pedestrian Route
- Future Pedestrian Connection
- Main Car Route

LANDSCAPE DESIGN STRATEGY

Play & Exercise

The landscape provides designated play for children of all ages. Located in the North western corner of the site a generous play area provides a kick about area, climbing/rebound wall, tots play and older children's play equipment. In addition to the designated play, the site offers areas for natural play in the form of grass mounds, boulders and logs. Exercise equipment is provided to encourage people of all ages to keep active. There are also lawn area and hardscaped areas both suitable for yoga and Pilates.

Legend

- Play Area
- Natural Play
- Creche Play
- Exercise Area
- Exercise Route

LANDSCAPE DESIGN STRATEGY

Soft Landscape

The design aims to provide a palette of coastal planting which will thrive in its natural surroundings. The coastal planting mix aims to give life and colour to the scheme adding to the character of the space. Soft landscape areas will also enhance biodiversity and support sustainable urban drainage systems.

Legend

- Lawn
- Coastal Planting Mix/ Shrubs

LANDSCAPE DESIGN STRATEGY

Proposed Tree Planting

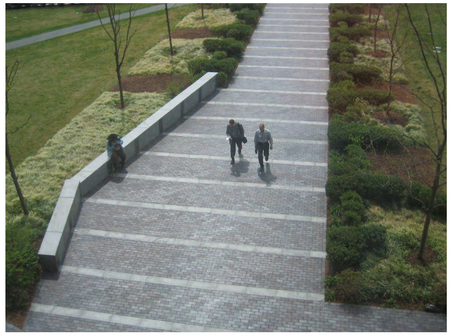
There are a range of tree species being proposed throughout the site. Castle street will feature new street trees, helping to soften the streetscape and frame the architecture. There will be tree planting along the site boundary providing screening and privacy as well as a soft boundary edge. There will be a mix of courtyard trees planted on the podium level.

Legend

- Proposed Trees

LANDSCAPE DESIGN STRATEGY

Hard Landscape



Hard materials will primarily consist of a mix of rigid laid paving and a buff resin bound aggregate, providing warm tones favourable to overall materials palette. Stepping stones/garden paths are provided in the North and South community gardens which give a more intimate character to the spaces.

Legend

- Resin Bound Aggregate
- Grey/Buff Paving Blocks
- Coloured Asphalt

LANDSCAPE DESIGN STRATEGY

Bicycle Parking & Seating

Visitor bike parking will be provided throughout the site within the landscape, a total of 35no. Sheffield stands equaling 70no. bike spaces. Residents bike parking is provided within the basement car park. There are numerous areas to sit and rest throughout the landscape with seating and benches provided.

Legend

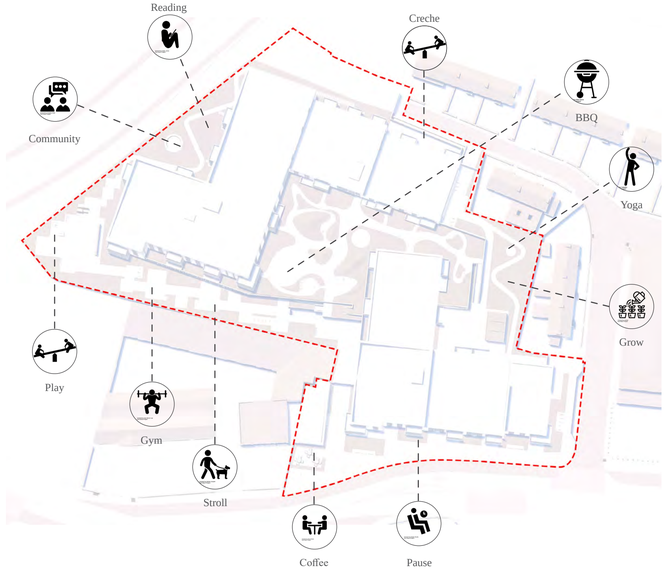
- Bike Parking

  Total Visitor Bike Parking
  Spaces - 70no.
  Sheffield Stands - 35no.

- Benches

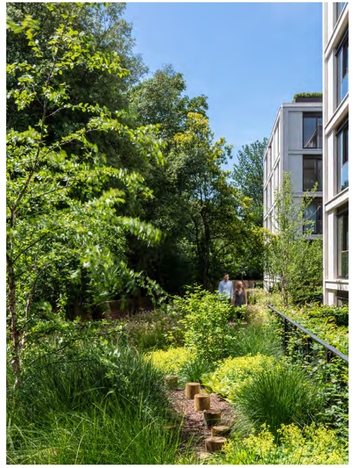
LANDSCAPE DESIGN STRATEGY

Programme



The design is packed with amenities, aiming to provide a splash of colour, activity and fun within the landscape. An active street front along Castle Street provides seating opportunities and outdoor eating. There are exercise stations and play equipment provided as well as kick about and yoga facilities. The community gardens and podium courtyard provide amenity space for gathering, relaxation and BBQ. There is also opportunities to grow food and herbs in the allotments provided.

CHARACTER IMAGES



Character Images

LANDSCAPE MASTER PLAN

LANDSCAPE MASTER PLAN

LEGEND

1. Podium Courtyard
2. Castle Street Pedestrian Access
3. Welcome Plaza
4. Garden Walk
5. Play
6. North Garden
7. Future Link To SAR Road
8. Creche Outdoor Play
9. Dwyer Park Pedestrian Entrance
10. Southern Garden
11. Streetscape
12. Creche Drop-Off
13. Bin Collection Zone - Hard-standing

The Castle Street edge is heavily vegetated with planters and trees, which help add to the building facade and encourage biodiversity. There is vehicle access off Castle street, and a separate pedestrian access with a welcome garden which links to the Garden Walk. The Garden Walk is heavily planted, with seating and exercise stations which terminates in a play area. Stepping stones lead into a Northern garden, which has access from GF units. The GF units along Dwyer park also have access to the Northern garden via a garden path which is accessible from the private amenity space. There is access to the podium courtyard in the Southern garden. There is an area of hard-standing for refuse truck and creche drop off, with creche outdoor play space.

There is scope to incorporate bricks from the historic wall to delineate planted areas in the Northern and Southern gardens, as well as including the historic weighing scales as a display/art piece in the garden walk.

Ecology + Biodiversity

There will be a net gain for biodiversity by planting native tree species, coupled with plants selected form a list of pollinator friendly species and maintained to increase the availability of flowering plants in the shoulder months. The site currently has little to no existing vegetation, and the proposed landscape plan aims to provided a “green pocket” in the area. The coastal planting mixes will allow for local biodiversity to thrive.

Programme

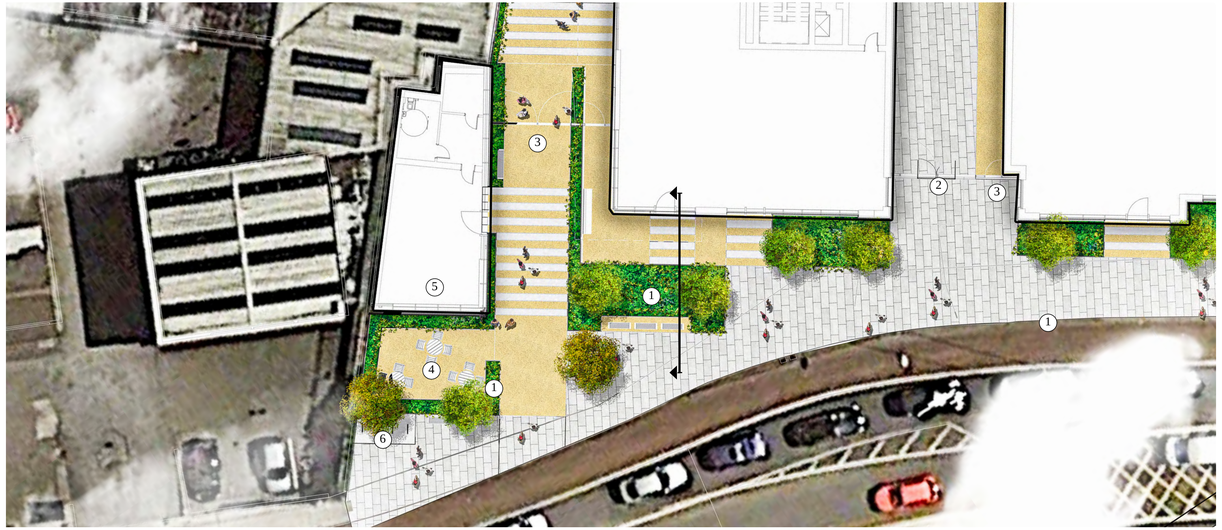
Programming, when it comes to public and communal spaces, has to do with intended use.

A programmed space has been confined to a specific usage, while an non-programmed space is a space that has been created, but not defined. The use is left up to the user, which makes the space flexible enough to change when necessary. Programme can be fixed or flexible and enhances the quality and the use of spaces within the landscape.

Community

The development offers an opportunity to curate community. The masterplan has been crafted in such a way so as to promote Placemaking, creating opportunity for interactions on a social level and generating a sense of neighborhood and connection. The simplest of interventions such as a bench on the corner of an intersecting path can create friendships in a time of social isolation.

STREETSCAPE - CASTLE STREET



LEGEND

1. Coastal Planting Mix
2. Vehicle Entrance
3. Pedestrian Access
4. F+B Spill Out
5. Community Facility
6. Visitor Bicycle Parking

Reference Image

Castle Street provides the primary frontage and access to the site. There is vehicle access through an undercroft between the commercial units, and a primary pedestrian/ cycle entrance.

The design for Castle Street is to provide as much landscape as possible. The geometry of the planters along the street is quite formal, although the coastal planting inside will be random.

There are seating opportunities carved into the planters, and commercial F+B spill out surrounded by landscape.

The street scape has been designed with the potential future bus connects scheme in mind, and should it go ahead would not have a major impact on the design of the landscape, which could be easily adjusted to accommodate the scheme.

Castle Street Indicative Section

STREETSCAPE - CASTLE STREET

Indicative Landscape View

Reference Images

GARDEN WALK

LEGEND

1. Access to Podium
2. Exercise Stations
3. Seating Pocket
4. Grass Crete Edge (Fire Tender)
5. Compacted Gravel
6. Core Entrance

The Garden Walk is a pedestrian access route, with spaces and pockets along the way, for programme such as seating and exercise.

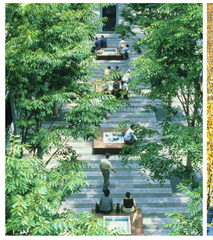
The route is wide enough for fire tender access, with a compacted gravel path and grass-crete edge.

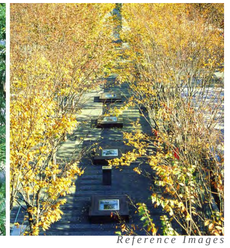
There is access to the podium courtyard, and access to the building core.

At the end of the linear park there is play, kick about area and ball court.

GARDEN WALK

Indicative Landscape View





Reference Images

NORTHERN GARDEN

LEGEND

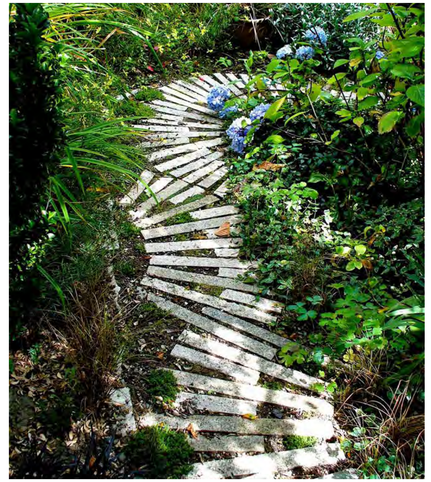
1. Gathering BBQ Area
2. Stepping Stones Path
3. Planting
4. PAS
5. Lawn
6. Seating Edge

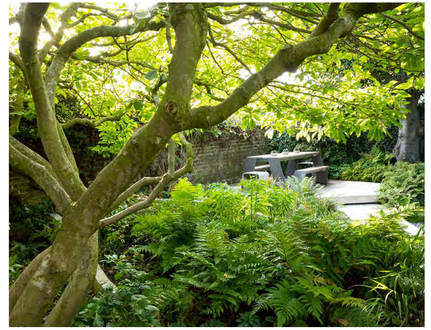
The Northern Garden is heavily landscaped to create a 'secret garden' experience. Stepping stones carve their way through the heavily planted space, with a lawn and sunken gathering area.

There is access for residents in the ground floor units.

The garden offers a tranquil space to connect with nature, read or meditate, as well as gathering with neighbours.

Reference Images

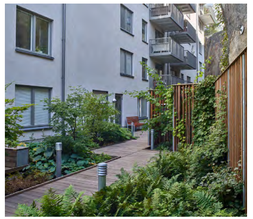




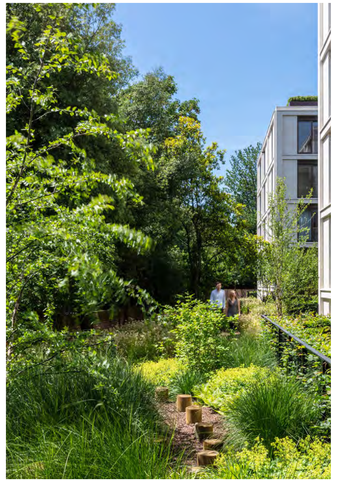
DWYER PARK

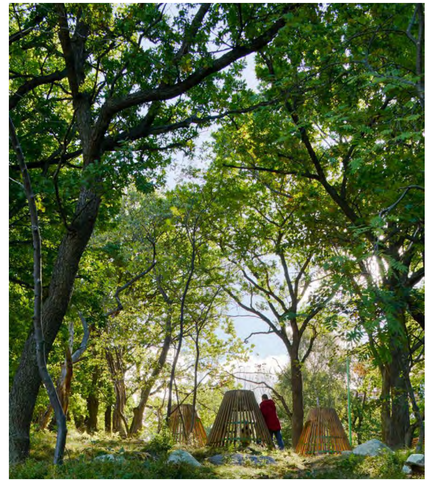
LEGEND

1	Creche Play Area	Ground floor units can access the northern garden via a garden path inside the boundary at Dwyer Park. This is also an access route to the pedestrian and cycle entrance from Dwyer Park itself. This entrance leads to the southern garden, podium access and through to Castle Street.
2	Garden Path	
3	Planter Wall With Screen	The route will be heavily planted, providing a buffer to the site boundary, and used primarily by residents of the ground floor units in this location.
4	Dwyer Park	
5	PAS	A wall and screen acts as a boundary to a future connection to the SAR.



Reference Images





SOUTHERN GARDEN

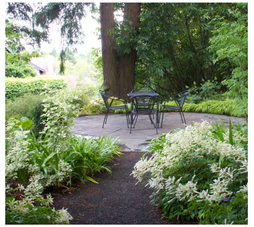
LEGEND

1. Lawn
2. Podium
3. Seating Pockets
4. Urban Food
5. Woodland Landscape
6. Creche Drop off

The Southern Garden is a residents garden which may also provide spill out opportunities for the commercial units.

There is access to the podium courtyard via stairs and lift.

There is a lawn area surrounded by the buffer of a woodland type landscape. Small seating pockets are programmed into the woodland accessible by a garden path which is carved between woodland and lawn.



Reference Images

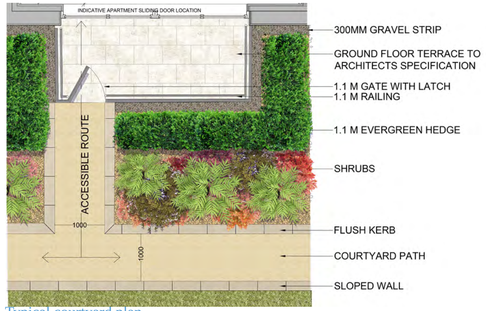
SOUTHERN GARDEN

Reference Images

PODIUM COURTYARD

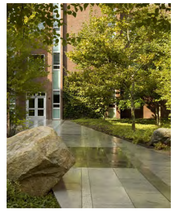
Courtyard Principles

The Podium Garden will be the predominant provision of communal open space to serve the development. Studies have proven that a front garden or private terrace opening onto a shared space has a positive influence in social interaction and passive surveillance on the street (2001, Gehl, Jan).



Typical courtyard plan

Typical courtyard section



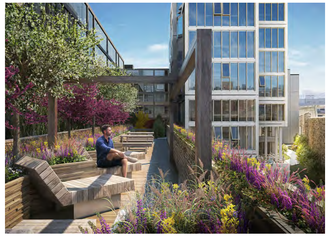
Reference images

PODIUM COURTYARD

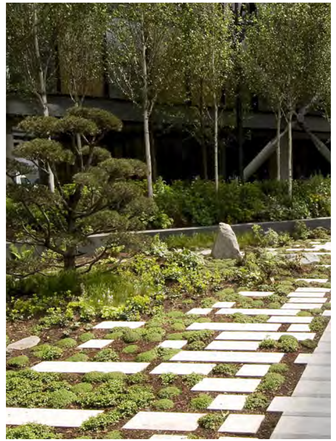
Indicative Landscape View

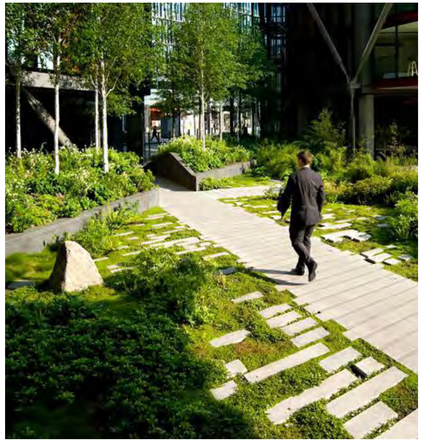
LEGEND

1. Lawn
2. Landform
3. BBQ Area
4. Garden Path
5. Planting
6. Seating Pockets



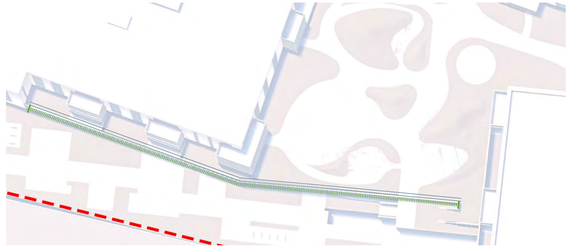
PODIUM COURTYARD CHARACTER





PODIUM EDGE

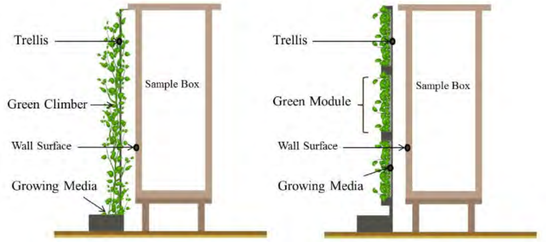
Podium Edge Diagram



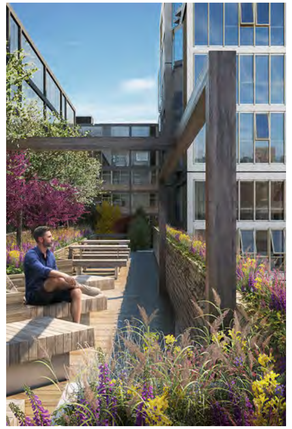
Legend

Planted Edge

Pergola

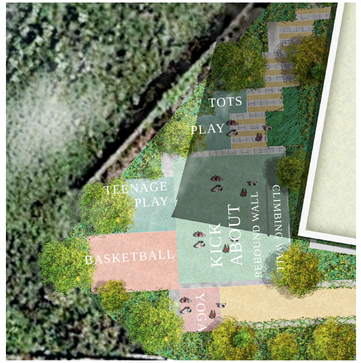


Climbing plants are proposed to soften the podium edge along the garden walk. There are various options for growing the planting, from above and below the podium. The climbers can be grown on a stainless steel rope system fixed to the facade as an alternative to growing the plants on the structure. At podium level there is a pergola like fixture which will also be enhanced by planting, softening the edge and framing views.



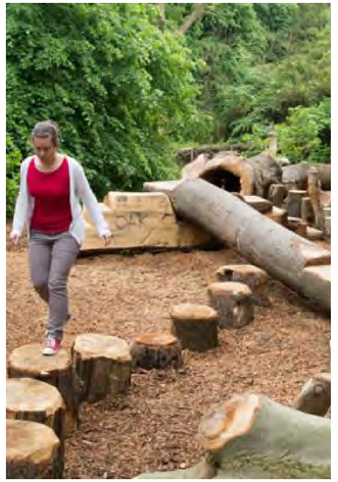
Reference Images

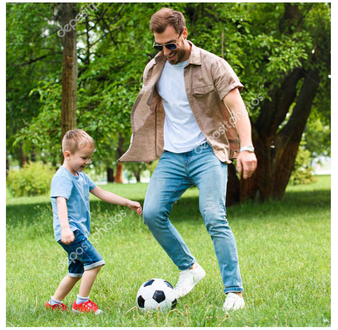
PLAY + EXERCISE



There is designated play located at the end of the linear park, including a kick about area, with rebound wall and climbing wall, basketball net, teenage and toddler play equipment. There is also natural play occurring through the landscape. This comes in many forms, such as boulders, logs, stepping stones and topography/ mounds.

There are exercise stations located along the linear park. Lawn area provided are suitable for group exercise and yoga, as well as various jogging/walking routes throughout the site.





LANDSCAPE MATERIALS

Landscape Plans and schedules included in the pack, prepared by NMP Landscape Architects includes a schedule of proposed planting and illustrates the location and extent of mown grass, managed long grass, reinforced grass, low ground cover, hedge and tree planting.

The soft landscape materials proposed are easy to maintain and resilient to the Irish climate. Many plants from the Ireland 2020 Pollinator Plan were chosen to be included in the plant palette. Plants were also chosen for the scale of planting and to respond to scale of space. Shade tolerant species have been chosen for the podium courtyard and North + South Gardens. Exposure tolerant small trees and shrubs have been chosen for the roof gardens.

Tree species are selected for longevity, suitability to local soil conditions and micro-climate, biodiversity (native species) and where required suitability for proximity to residential buildings. Proposed tree sizes range from heavy standards to multi-stemmed trees. New trees are proposed in order to improve the species mix and the proportion of native species on site. Typical species are illustrated on the following pages.

Low planting is utilized to make and reinforce sub-spaces within the larger landscape spaces, for visual screening, defensible space, visual interest, ecological purposes and to guide or direct people's movement. The low planting is conceived as subtle layering of greens within the open spaces. The planting is layered as follows; lowest - bulb planting, ground cover planting, highest - clipped hedge planting.

The selection of hard landscape materials is determined by function but also to provide a cohesive palette of materials throughout. Materials have been chosen to be both robust and timeless, provide texture and tone for visually impaired, while also seeking to provide integrated intuitive way-finding. Furniture has been chosen to be robust and easy to maintain.

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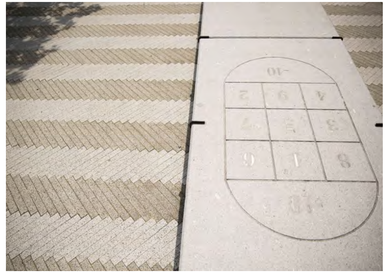
HARD MATERIALS PALETTE

High Quality Streetscape Paving

It is proposed to bring a sense of warmth to the streets by specifying buff colored paving flags to the pedestrian areas in various sizes with a degree of variance through the grain of the stone.

Courtyard Paving

The courtyard will consist of a mix of hard materials with the aim of maintaining an organic feeling to the space. Flags will be set into buff paths in a pattern to break up the paving. Warm soft tones to the hard landscape.



Resin Bound Aggregate

Resin bound aggregate in a buff colour is aimed to brighten the hard landscape while providing a natural soft feeling under foot. This will be used in areas of hard standing as a substitute to paving such as seating areas throughout the landscape and some paths.

Compacted Self Binding Gravel

Compacted self binding gravel also in a buff colour like the resin bound aggregate is aimed to brighten the hard landscape while providing a natural soft feeling under foot. Unlike the resin bound gravel this material is self binding and provides a more organic feel. It is suitable for universal access, prams and bicycles. This will be used alongside a mix of paving for the majority of paths through the landscape.

Landscape Furniture

Provision of Railings to boundaries + GF terraces. Street furniture has been selected to adhere to an age friendly seating strategy (backs on seats with arm rests, all located at intervals for rest stops). Chunky timber and natural stone benches are proposed to fit in with the landscape vision and design.

Lighting

Lighting will be provided to subtly illuminate the landscape space, thereby enhancing the user experience.

PLANTING PALETTE

Planting styles and types will vary depending on use. The palette for the raised planters should be softer, colorful and generally more shade tolerant. Within the public realm, plants will be more robust, evergreen and require less maintenance.

Scale of planting and transition in shrub planting from low medium and high to create defensible space has been planned according to programme, thresholds and spatial hierarchy.


Echinacea surpurea


Pennisetum setaceum ‘rubrum’


Gaura lindheimeri


Miscanthus sinensis


Panicum virgatum


Pennisetum macrourum


Sanguisorba officinalis


Stipa barbata


Stipa tenuissima


Verbena bonariensis


Festuca glauca


Euphorbia amigdaloides

TREE PALETTE


Liquidambar


Sorbus aucuparia


Pyrus calleryana


Pyrus chanticleer


Carpinus betulus


Prunus serrula multi-steam


Acer campestre


Betula utilis


Arbutus unedo


Malus sylvestris


Magnolia grandiflora


Pinus sylvestris

SOFT LANDSCAPE

Pollinator Plan

The pollinator plan 2020 has richly informed the planting palette and soft landscape approach. This in conjunction with a selection of native plant species will characterize the landscape design. Planting will inform and define public routes to differentiate from communal or private space.

Wildflower Meadow

Meadows managed in the following way will allow wildflowers to bloom throughout the pollinator season. A further benefit is that bumblebees are provided with an undisturbed area for nesting. Over a number of years, the area will become more and more flower-rich with local species that are adapted to the site's conditions – all without spending money on wildflower seed.

Short Flowering '6-Week Meadow'

Identify areas of grass that could be cut on a 6-weekly rotation to allow Clovers and Bird's-foot-trefoil to flower. This will provide food for pollinators where shortly mown grass does not. Such areas could be beside areas of shortly mown grass, a path or a meadow

Flowering Trees And Shrubs

Incorporate a mix of pollinator friendly trees and shrubs into the local community that will flower throughout the season. An orchard can be a wonderful addition for pollinators and the community.

It is important to prioritize increasing native plants (trees, shrubs, wildflowers) across the landscape to provide food for pollinators.

Perennial Flowers For Pollinators

Incorporate pollinator friendly perennial plants into the local community to provide food for pollinators from spring through to autumn.

Pollinator friendly perennial plants are excellent sources of pollen and nectar. They are much more attractive to bees when planted in blocks rather than as single plants. Having a pollinator friendly perennial bed is an excellent way to provide food for pollinators across their life cycle.

Annual Flowers For Pollinators

Work with local authorities to ensure a component of annual planting in parks is with pollinator friendly annual plants - single rather than double flowered varieties.

You should always try to select scented, single-flowered varieties. The block planting of these can be an excellent source of food for pollinators.

Pollinator Friendly Urban Planters

Identify some urban planters or hanging baskets where the standard annual bedding mix could be replaced by perennial pollinator friendly plants.

Native Wildflower Meadows

Identify areas where it may be possible to create a native wildflower meadow using commercially purchased seed. This would be more flower-rich than the meadow but it is also more costly and requires careful planning and management. If you do have a suitable site, it is very important to buy a pollinator friendly seed mix that has been grown in Ireland from native wildflowers and is suitable for your soil type.

SOFT LANDSCAPE

Pollinator Plan

Hedgerows For Pollinators

Flowering hedgerows that contain Hazel, Willow, Blackthorn and Hawthorn provide food in spring when wild bees come out of hibernation. Bramble is a good source of food in summer, and Ivy in the autumn. Bumblebees often nest in long grass at the base of hedgerows.

Eliminate The Use Of Pesticides

Identify some areas where the use of pesticides could be eliminated. This could be streets or other areas where there may be responsibility for manual weed control. Most herbicide use is along edging or tree bases that mowers can't access. Identify areas of south facing edging that could not be sprayed to provide solitary bee nesting habitat.

Pesticides Avoided

Identify areas that could be spot treated rather than with the use of blanket sprays. Spray in dry conditions with low wind speed to prevent drifting. Spray after sunset to avoid direct contact of pollinators with chemicals.

Bee Hotels For Pollinators

Incorporate small numbers of solitary bee nest boxes into the local community for cavity nesting solitary bees. Bee hotels can be useful and are a good awareness raising tool, but actions 13 and 14 are preferable ways to create nest sites. A number of small hotels is better than one large one in terms of minimizing the risks of disease and predators killing the bees.

Clover Lawns

Identify small areas where grass could be entirely replaced with a permanent clover mix. Red and white clovers will provide colour, and are a very important food source for bees.

Awareness

Promote the All-Ireland Pollinator Plan to local businesses and encourage them to make their outdoor spaces pollinator friendly or to sponsor local pollinator friendly actions

Signage

Put up signage explaining the importance of pollinators and what is being done locally to support the All-Ireland Pollinator Plan. Templates that can be used to create signage can be downloaded from the website.

Training

Facilitate or deliver training programmes locally on pollinators and how to take action to protect them. Resources will be available to allow interested parties to deliver training on: creating nest sites for wild pollinators; identification of common pollinator species; how to participate in the All Ireland Bumblebee Monitoring Scheme; collection, storage and use of local wildflower seed to improve areas that are being managed as small grassy meadows in parks, schools, along green-ways etc.

APPENDIX 1 - SOFT LANDSCAPE OUTLINE SPECIFICATION

1. Specifications for supply.

1.0 Schedule of supply:
The nursery stock material will be delivered following consultation between the Landscape Architect, landscape contractor and the selected nursery, and the Engineer. Delivery will be at all times by means of covered vehicles, and all plant material will be clearly labeled. The source of origin must be from the selected nursery as no other additional stock from other nurseries will be permitted without prior inspection and approval.

1.1 Programme of Works
The planting works shall be executed at the earliest opportunity.

1.2 Nursery stock:
All plant material shall be good quality nursery stock, free from fungal, bacterial or viral infection, aphids, red spider or other insect pests and any physical damage. It shall comply with the requirements of B.S. 3936: Parts 1-10: 1965 Specification for Nursery Stock, where applicable.

All plants shall have been nursery grown in accordance with good practice and shall be supplied through the normal channels of the wholesale nursery trade. They shall have the habit of growth that is normal for the species. Country of origin must be shown in all cases for species grown from seed.

Unless otherwise stated, the plant materials shall be supplied in accordance with the following codes where stated:

1+0	1 Year old seedling
1+1	1 Year old seedling lined out for 1 year
1+2	1 Year old seedling lined out for 2 years
1+1+1	1 Year old seedling lined out for 1 year, lifted and lined out for one further year
1u1	1 Year old seedling undercut then 1 more year in seedbed.
1u2	1 Year old seedling undercut then 2 more years in seedbed.
0/1	1 Year old Hardwood cutting
0/2	2 Year old Hardwood cutting
2X	Twice transplanted tree
3X	Three times transplanted tree
4X	Four times transplanted tree
P9	Containerised plant in 9cm pot

1.3 Species:
All plants supplied shall be exactly true to name as shown in the plant schedules. Unless stipulated, varieties with variegated and/or coloured leaves will not be accepted, and any plant found to be of this type upon leafing out shall be replaced by the contractor at his/her own expense.
Bundles of plants shall be marked in conformity with B.S. 3936: Part 1: 1965 and B.S. 3936: part 4: 1966. The nursery supplier shall replace any plants which, on leafing out, are found not to conform to the labels. Definitions of all terms used are in accordance with the following British Standards:

B.S. No. 3936: Part 1: 1965 entitled “Nursery Stock- Trees and Shrubs”

B.S. No. 3936: Part 4: 1966 entitled “ Nursery Stock- Forest Trees”

B.S. No. 3936: 1967 entitled “Specification for Nursery Stock”

2.0 Tree specifications:

Trees shall have a sturdy, reasonably straight stem, and a well-defined straight and upright central leader, with branches growing out of the stem with reasonable symmetry. The crown and root systems shall be well formed. Roots shall be in reasonable balance with the crown and shall be conductive to successful transplantation.

2.1 Standard trees shall have a clear stem 1.70m in height from ground level to the lowest branch, a minimum girth of 8cm measured at 1.00m above ground level and a total height of 2.75-3.00 m.

2.2 Light Standard trees have a clear stem 1.30m in height from ground level to the lowest branch, a minimum girth of 6cm measured at 1.00m above ground level and a total height of 1.80-2.40m.

2.3 Select standard trees shall have a clear stem 1.70 m in height from ground level to the lowest branch, a minimum girth of 10 cm. Measured at 1.00.m. Above ground level and a total height of 3.0 to 3.5 meters.

2.4 Heavy standard trees shall have a clear stem 1.80-1.90m in height from ground level to the lowest branch, a minimum girth of 14 cm. measured at 1.00.m. above ground level and a total height of 4.0 to 4.5 metres. All trees shall have been undercut a minimum of three times.

2.5 Extra Heavy standard trees shall have a clear stem 2.0m in height from ground level to the lowest branch, a minimum girth of 16 cm. measured at 1.00.m. above ground level and a total height of 4.5 to 5 metres. All trees shall have been undercut a minimum of three times.

2.6 Semi-mature trees shall have a clear stem 2.0m in height from ground level to the lowest branch, a minimum girth, as specified in the Bill of Quantities, measured at 1.00.m. above ground level and a total height of min. 5 metres. All trees shall have been undercut a minimum of three times.

All standards shall be clearly labeled.

2.7 Feathered Trees 180-240cm
Feathered trees shall be not less than four years old, and shall have been transplanted at least three times. Trees of species not listed in BS 3936: Part 4: shall be sturdy, with a balanced root and shoot development. Size shall conform to the schedules.
Trees shall be well furnished with lateral fibrous roots, and shall be lifted without severance of major roots. Roots shall be of the habit normal for the species, without deformation. Transplants shall be wrapped in polythene in bundles of 50 no. And clearly labeled from the time of lifting until planting to conserve moisture.

APPENDIX 1 - SOFT LANDSCAPE OUTLINE SPECIFICATION

2.8 Feathered Transplants 120-150cm
Transplants shall be not less than two years old, and shall have been transplanted at least once. Trees of species not listed in B.S. 3936: Part 4: shall be sturdy, with a balanced root and shoot development. Size shall conform to the schedules.
Trees shall be well furnished with lateral fibrous roots, and shall be lifted without severance of major roots. Roots shall be of the habit normal for the species, without deformation. Transplants shall be wrapped in polythene in bundles of 50 no. and clearly labeled from the time of lifting until planting to conserve moisture.

2.9 Feathered Transplants 90-120 cms, 60-90 cm, 40-60 cm, 30-40 cm
Transplants shall be not less than one year old. Trees of species not listed in B.S. 3936: Part 4: shall be sturdy, with a balanced root and shoot development. Size shall conform to the schedules. Trees shall be well furnished with lateral fibrous roots, and shall be lifted without severance of major roots. Roots shall be of the habit normal for the species, without deformation. Transplants shall be wrapped in polythene in bundles of 50 no. and clearly labeled from the time of lifting until planting to conserve moisture.

2.10 Shrubs

(1) Containerised Shrubs shall be of the size specified in the schedules, with several stems originating from or near ground level and of reasonable bushiness, healthy, vigorous and with a sound root system. Pots or containers shall be appropriate to the size of shrub supplied and clearly labeled. Shrubs shall not be pot bound or with girdled or restricted roots.

(2) Bare Root Shrubs shall be of size specified in the schedules, with several stems originating from or near ground level, with reasonable bushiness, healthy, and vigorous. They shall be well furnished with fibrous roots and shall be lifted without severance of major roots. All bare root shrubs shall be wrapped in polythene in bundles of 50 no. and clearly labeled from the time of lifting until planting to conserve moisture.

2.11 Container Grown Conifers:
Conifers shall be of the size specified in the schedules, with one main stem originating from or near ground level and of reasonable bushiness and health, with a well-grown, root system. Pots or containers, where required, shall be appropriate to the size of plant supplied and clearly labeled. Plants shall not be pot bound, or with deformed or restricted roots.

2.12 Protection:
The interval between the lifting of stock at the nursery and planting on site is to be kept to an absolute minimum. Plants shall be protected from drying out and from damage in transport. All stock awaiting transport shall be protected from the wind and frost and from drying out.
Protection shall include for the supply of stock to site to a suitable heeling-in/ storage area prior to planting. The landscape contractor shall allow for liaison with the site engineer to arrange the heeling-in area/ storage. The contractor shall continue to be entirely responsible for the maintenance of this stock to ensure that at the time of planting the stock complies with the requirements for the supply of nursery stock as per clause 1.0 thereof. No responsibility for the maintenance of the stock will attach to the site engineer whilst the stock is protected on site. No time limit shall attach to the period of protection.

In the event of the Landscape Architect being dissatisfied with the care and attention given to the stocks, following heeling-in, he shall notify the Landscape Contractor who shall take steps to ensure careful heeling-in procedures.

The preparation of the heeling-in area and its subsequent maintenance is the sole responsibility of the Landscape Contractor.

2.13 Damage
On completion of lifting of plants in the nursery, any broken shoots or severed roots shall be pruned, areas of damaged bark neatly pared back to sound tissue.

2.14 Inspections
The Landscape Architect will inspect the hardy nursery stock on the selected nursery during the execution of the works. Only plants selected and approved in the landscape contractors selected nursery will be accepted on the site.

2.15 Delivery and heeling in
All plants will be delivered on a phased basis as called up in advance in agreement with the Engineer, Landscape Architect and the appointed Landscape Contractor. In the event of the Landscape Architect being dissatisfied with the care and attention given to the stocks, following heeling-in, he shall notify the Landscape Contractor who shall take steps to ensure careful heeling-in procedures.

The preparation of the heeling-in area and its subsequent maintenance is the sole responsibility of the Landscape Contractor.

3.0 Specifications for site operations:

3.1 Setting out:
Setting out shall be in accordance with site meetings with the Landscape Architect, and the drawings listed in the preliminaries. No planting works shall take place when the soil /fill is in a waterlogged condition.

3.2 Finished grading:
All planting pits and topsoiled areas disturbed by the landscape contractor shall be left in an even state, with all soil clumps broken up and stones of greater than 50mm diameter shall be removed.

4.0 Specifications for Planting and Plant Materials

4.1.1 Stakes:
Round stakes shall be of peeled larch, pine or Douglas fir, preserved with a water-borne copper chrome arsenic composition in accordance with I.S. 131.For standard and select standards stakes shall be 1.8m long, 75mm in diameter. Stake all whips and transplants greater than 120cm in height. For all transplants exceeding 120cm height stakes shall be 1.2m long, 37mm x 37mm square. Stakes shall be pointed at the butt end. Set stakes vertically in the pit, to the western side of the tree station, and drive before planting. Drive stake with a wooden maul or cast-iron headed drive. Stakes shall be driven into the excavated planting pit to a depth of:

800mm for Standards/Light Standards/Feathered Trees
1000mm for Heavy Standards
500mm for Whips/Transplants

4.1.2 Canes:
Bamboo canes or similar approved shall be used to provide spot spraying location markers for small plants including Pinus, species. The canes are not to be attached to the plants.

4.2 Tree ties:
For standard and select standards, tree ties shall be of rubber, PVC or proprietary fabric laminate composition and shall be strong and durable enough to hold the tree securely in all weather conditions for a period of three years. They shall be flexible enough to allow proper tightening of the tie. Ties shall be min. 25mm wide for 120cms height trees and min. 38mm for larger sizes. They shall be fitted with a simple collar spacer to prevent chafing. Two ties per tree shall be applied to standards; for staked transplants, one tie per tree is required. Ties shall be nailed to the stake with one galvanised nail.

4.3 Protection:
The interval between the lifting of stock at the heeling-in area and planting on site is to be kept to an absolute minimum. Plants shall be protected from drying out and from damage in transport. All stock awaiting planting on site shall be stored in a sheltered place protected from the wind and frost and from drying out.

All transplants shall be wrapped in polythene from the time of lifting to conserve moisture. Except when heeled-in, they shall be protected in polythene at all times until planted into their final position on site.

4.4 Damage:
On completion of planting any broken branches shall be pruned, areas of damaged bark neatly pared back to sound tissue.

4.5 Watering / Alginure / Fertilisers:
All bare rooted light standards and select standards shall be soaked in water overnight, on site, before planting in a liquid solution containing “Alginure” at the recommended dilution rate. Fertilisers shall conform to BS 5581: 1981. In the case of granular fertiliser being added to plantings, it must be mixed through and incorporated into the base of the planting hole and covered over in order to avoid roots of plants coming in direct contact.

4.6 Setting out:
Setting out shall be in accordance with site meetings with the Landscape Architect. Transplants in mixtures shall be planted in staggered rows. Species shall be planted in groups, as indicated in the planting drawings.
No planting shall take place until all planting holes (with ameliorants) have been inspected and approved by the Landscape Architect, or a person appointed by him as a representative, to ensure accordance with the specifications. No planting shall take place when ground conditions are frozen or waterlogged. All planting holes shall be opened and closed on the same day.

4.7 Tree planting:
Trees shall be planted at the same depth as in the nursery, indicated by the soil mark on the stem of the tree. They shall be planted in the centre of the planting pit and planted upright. Stones or other rubbish over 75mm shall be removed. Supply and drive the stake 800mm into the ground for standards, 500mm for other transplants. Backfill planting hole with excavated topsoil, and remove all stones and debris, firming plant into position

4.7.1.Select Standards/Standards
Excavate tree pits to 800mm x 800mm x 600mm deep, or as approved. The base of the pit shall be broken up to a depth of 80mm and glazed sides roughened. F.Y.M. at the rate of 0.047 cu.m.(equivalent to 60mm deep) and 100gms of 0.10.20 shall be applied to each tree pit prior to planting. Farm manure shall consist predominantly of faecal matter and shall be free of loose, dry straw and undigested hay. It shall be free of surplus liquid effluent. Backfill planting hole with excavated topsoil, and remove all stones and debris, firming plant into position.

4.7.2 Heavy and Extra Heavy Standards
Excavate tree pits to 1000mm x 1000mm x 800mm deep, or as approved. The base of the pit shall be broken up to a depth of 100mm and glazed sides roughened. F.Y.M. at the rate of 0.047 cu.m. (equivalent to 60mm deep) and 100gms of 0.10.20 shall be applied to each tree pit prior to planting. Farm manure shall consist predominantly of fecal matter and shall be free of loose, dry straw and undigested hay. It shall be free of surplus liquid effluent. Backfill planting hole with excavated topsoil, and remove all stones and debris, firming plant into position.

4.7.2 Semi-mature trees
Excavate tree pits to 1200mm x 1200mm x 1000mm deep, or as approved. The base of the pit shall be broken up to a depth of 200mm and glazed sides roughened. F.Y.M. at the rate of 0.047 cu.m. (equivalent to 60mm deep) and 100gms of 0.10.20 shall be applied to each tree pit prior to planting. Farm manure shall consist predominantly of fecal matter and shall be free of loose, dry straw and undigested hay. It shall be free of surplus liquid effluent. Backfill planting hole with excavated topsoil, and remove all stones and debris, firming plant into position.

4.7.3.Light Standard Trees
Excavate tree pits to 500mmx500mmx500xx deep, or as approved. The base of the pit shall be broken up to a depth of 80mm and glazed sides roughened. F.Y.M. at the rate of 0.047 cu.m. (equivalent to 60mm deep) and 100gms of 0.10.20 shall be applied to each tree pit prior to planting.

APPENDIX 1 - SOFT LANDSCAPE OUTLINE SPECIFICATION

Farm manure shall consist predominantly of fecal matter and shall be free of loose, dry straw and undigested hay. It shall be free of surplus liquid effluent. Backfill planting hole with excavated topsoil, and remove all stones and debris, firming plant into position.

4.8 Feathered Trees 180-240cm, container grown conifers (>2l)
Excavate tree pits to 400mm x400mm x 400 mm deep, or as approved (slit or notch planting are not acceptable planting methods). The base of the pit shall be broken up to a depth of 80mm and glazed sides roughened. Trees shall be planted at the same depth as in the nursery and backfilled with compound fertiliser 0.10.20 at the rate of 50gm per tree and 0.020m3 of Mushroom Compost or similar approved. Backfill planting hole with excavated topsoil, and remove all stones and debris, firming plant into position.

4.9 Feathered Whips 120-150 cm:
Excavate tree pit to depth of 300mm x 300mm x 300mm deep, or as approved (slit or notch planting are not acceptable planting methods). Excavation to be achieved by machine digging or auguring methods, approved by the Landscape Architect. The base to be broken up to a depth of 60mm and glazed sides roughened. Whips to be planted at same size as in the nursery. Apply 60gm 0.10.20 and 0.020m3 of Mushroom Compost or similar approved.per tree pit to plants. Stakes 1.2m high x 37mm dia. Backfill planting hole with excavated topsoil, and remove all stones and debris, firming plant into position.

4.10 Feathered Whips and Transplants 90-120cm, 60-90 cm, 40-60cm, 30-40cm, container grown conifers (<2l size) and container grown shrubs (<2l size):
Excavate planting hole to a depth of 300mm x 300mm x 300mm deep; the base to be broken to a depth of 50mm and glazed sides roughened (slit or notch planting are not acceptable planting methods). Excavation to be achieved by machine digging or auguring methods, approved by the Landscape Architect. Apply 30gm 0.10.20.per planting pit. Backfill planting hole with excavated topsoil, and remove all stones and debris, firming plant into position.

4.11 C. G. Shrubs / C. G. Wall Shrubs / C.G. Climbers:
Excavate planting hole to a depth of 300mm x 300mm x 300mm deep; the base to be broken to a depth of 50mm and glazed sides roughened. The following products are to be supplied and incorporated in to the bottom 100mm of topsoil at the base of the planting pit and in to the topsoil for backfilling around each plant: (1)Seanure soilbuilder as supplied by Farmura @ 1.5Kg per cu.m of topsoil, (2) clean and friable green waste compost @ 25 Kg per cu.m of topsoil and (3) Sierrablen Flora 15:9:9 slow release fertiliser @ 70 grams per m2 Backfill planting hole with excavated topsoil, and remove all stones and debris, firming plant into position.

4.12 Grassing
All grass areas to be ripped with a tractor mounted tine prior to rotovating. The contractor shall grade off all areas to smooth flowing contours, removing all stones greater than 10mm diameter and tip off site. All hollows to be filled in. Roll all areas with a roller as approved. Following the completion of final grading and raking, the area is to be left fallow for a period of 14 days. Spray with ‘Basta’ at recommended rates, and seed with fine grass mix at a rate of 35gr/Sq.m together with fertilizer 10:10:20 at a rate of 50gr/Sq.m use Coburns Irish premier low maintenance mixture or other as approved by the Landscape Architect.
4.12.1 Grass cutting

Grass cutting shall be carried out during the three year maintenance period and is defined into three categories:
4.12.2 Regular grass cutting
Shall be carried out to the frequencies indicated in the Bill of Quantities. Attention to neat and tidy cutting shall be required to all areas. Sightlines, as set out with the Engineer, at junctions and roundabouts must be kept clear of vegetation at all times.

GENERAL
Upon completion of planting, all pits shall be raked over lightly to leave an even surface and neat appearance. All stones greater than 50mm dia. to be removed. Provision should be made for the watering of light and select standards during periods of prolonged drought in the first year following planting.

4.13 Inspections:
The Landscape Architect will inspect the site with the Landscape Contractor during the execution of the works and following maintenance visits.

4.14 Presentation of certificates:
The Landscape Contractor shall present for the Landscape Architect’s inspection, all seed and fertiliser bags, together with their markings. If requested, the contractor shall furnish the Landscape Architect with receipts of purchase for these respective materials.

4.15 Spraying:

1) Following planting of embankments, slopes etc., weed free circles to be formed around individual plants, as directed, using an approved broad-spectrum contact herbicide, as approved by the landscape architect, in mid-spring following planting. Herbicide to be applied using controlled drop applicator containing a dye to indicate areas sprayed. In areas where grass is excessively long, such grass will be strimmed off and collected prior to spraying. The contractor shall be responsible for keeping the ground (1m diameter circle) around all planted material weed free by means of herbicidal application, using approved sprays, during the course of the contract. Weeds to be removed include grasses ,broad-leaved annual and perennial weeds and all noxious weeds.

2) Selective spot spraying will be carried out to all grassed areas, whether planted or unplanted through the application of contact herbicide to control broad-leaved annual and perennial weeds, including thistle, dock and ragwort. Contact herbicide to be approved by the landscape architect prior to application. Herbicide to be applied using controlled drop applicator containing a dye to indicate areas sprayed. The contractor shall allow for the removal of gorse by cutting, as required prior to spraying to ensure its eradication from all grassed areas for the duration of the contract.

APPENDIX 1 - SOFT LANDSCAPE OUTLINE SPECIFICATION

3) The boundary hedgerows shall be kept weed free by herbicidal application by forming a 300mm wide spayed strip along the full length of each respective hedgerow. Approved herbicide (broad-spectrum contact herbicide) to be applied using controlled drop applicator containing a dye to indicate areas sprayed. Spraying of planted areas on roundabouts is also included in this spraying application.

4) Such routine spraying (1, 2 and 3 above) shall be carried out during maintenance visits over the three-year period. No spraying shall take place during adverse weather conditions or at times not recommended by the manufacturer.

4.16 Cutting back:
Plants for cutting back/tip pruning shall be cut back after inspection by the Landscape Architect. This work to be carried out initially following planting for plants suffering from wind damage.
4.17 Mulching
Mulching may be considered as an optional factor that may be implemented. Mulch shall be from coniferous trees. It shall be shredded, but not pulverised, so that no dimension exceeds 75mm. Bark shall have been composted for a min. of 3mths. In the case of areas requiring mulch the depth of bark shall measure 30 mm.

4.18 Ground finish:
Upon completion of planting, all ground finish shall include for the removal of stones greater than 50mm excavated during the course of the digging for planting purposes.

APPENDIX 2 - HARD LANDSCAPE OUTLINE SPECIFICATION

PAVING & KERBS

FOOTPATHS

General: Public footpaths, roadways, kerbs etc. shall be constructed in accordance with the requirements of the Wicklow County Council.

Accuracy of Levels and Alignment: The levels of paths and paving shall be carefully set out and frequently checked. All care shall be taken to ensure that the correct cross sections are maintained. The finished face of paths shall be formed so as to provide adequate fall and satisfactory run off to surface water outlets, gullies, etc. Cross-falls of paths shall be carried without break across verges and kerbs to prevent ponding of water between back of kerb and
path.

Sub-Base: Granular material shall comply with Clause 804 of the D.o.E. Specification for Roadwork's and shall be spread uniformly over the formation and compacted by vibrator roller. Rolling shall continue until there is no movement under the roller. The finished surface of the compacted sub-base shall be parallel to the proposed finished surface of the footpath. The surface levels for each layer shall not deviate from the design levels by more than +15mm or –15mm.

For sub-base thickness in paved areas see area engineers spec. and attached following schedule. Each contractor shall do all necessary tests to ensure a well compacted, plain even surface on all areas with traffic movement. If paving shows settling after 1 year which normally is related to an insufficient depth and compaction of the sub-base the contractor shall rebuilt the failed area to his own cost.

Use of Surfaces by Construction Traffic:
Constructional traffic used on pavements under construction shall be suitable in relation to the courses it traverses so that damage is not caused to the sub-grade. Where damage is caused to the formation of the sub- grade in strength or level the damaged area shall be excavated for an area and depth which shall be determined by the Architect and this area shall be filled to the required levels with crushed rock of 50mm maximum size. The degree of compaction for this area shall be the same as that specified for the remainder of the formation. All this excavation and making good of damaged areas shall be carried out at the expense of the Contractor. Where damage is caused to the sub-base, the damaged area shall be made good as noted above, using the material of which the sub-base is composed. The wheels or tracks of plant moving over the various pavement courses shall be kept free from deleterious materials.

MODULAR PAVING

Concrete Pavers Precast concrete pavers shall conform to the requirements of BS 6717 Part 1.
Ensure that sub-bases are suitably accurate and to specified gradients before being laid.

Sample: Before placing orders submit representative samples for approval.
Ensure that delivered materials match sample.

Laying Generally:

1. Laying Specification

1.1 Paving blocks/bricks shall be laid to the requirements of Part 3: 1997, BS 7533, except that the lip onto gully gratings is modified to 5 - 6 mm.
Note, in particular, the following requirements of Part 3.
i. The difference in level between two adjacent blocks shall not exceed 2 mm.
ii. The finished pavement surface shall not deviate more than 10 mm under a 3m
straight edge.
iii. The accuracy of cutting a block should be such that the resulting joint should not
exceed 5 mm.
iv. The surface course should be between
(a) 3 - 6 mm above drainage channels
(b) 5 - 10 mm above gullies (*BRL modify this to 5 - 7 mm above gullies to
reduce "trips")
v. The surface course should be inspected soon after completion and at regular
intervals thereafter - additional sand should be brushed in where necessary.
1.2 The surface course for chamfered units should be 3 - 5 mm above the kerb to
facilitate surface drainage. The surface course for non-chamfered units should be 2 mm above the kerb to facilitate surface drainage.
1.3 When paving units need to be trimmed, pieces with a dimension less than 50 mm
should not be used.

2. Drainage Channels

2.1 Where paving blocks are used in a channel, they shall be laid on freshly mixed moist 3:1 sand-cement mortar. The mortar should have thickness between 10 mm and 40 mm. Vertical joints should be filled with 3:1 wet sand-cement mix.

2.2 Mortar, which has been mixed for over 2 hours, should be discarded.

2.3 The mortar should be laid on a previously prepared concrete base as per construction drawing detail. Select blocks/paviors vertically from at least 3 separate packs in rotation, or as recommended by manufacturer, to avoid colour banding. Lay blocks/paviors on a well graded sand bed and vibrate to produce a thoroughly interlocked paving of even overall appearance with sharp sand filled joints and accurate to line, level and profile. Refill joints once a week three weeks after first fill. Commencing from an edge restraint lay blocks/paviors hand tight with a joint width of 2-3mm for pedestrian use and 3-5 mm for areas with traffic. Maintain an open working face and do not use mechanical force to obtain tight joints. Place blocks/pavers squarely with minimum disturbance to bedding. Supply blocks/paviors to laying face over newly laid paving but stack at least 1 m back from laying face. Do not allow plant to traverse areas of uncompacted paving.

APPENDIX 2 - HARD LANDSCAPE OUTLINE SPECIFICATION

Continually check alignment of pavers with string lines as work proceeds to ensure maintenance of accurate bond.Infill at edge restraints as work proceeds. Wherever the type of bond and angle of edging permit, avoid very small infill pieces at edges by breaking bond on the next course in from the edge, using cut blocks/pavers not less than 1/3 full size. Cut stones shall be rectangular or trapezoidal; the smallest point shall be a minimum of 35mm. (May be pavers have to be turned by 90 deg.)Half stones shall be cut at manufacture. Thoroughly compact blocks/pavers with vibrating plate compactor as laying proceeds but after infilling at edges. Apply the same compacting effort over the whole surface.
Do not compact within 1 m of the working face. Do not leave uncompacted areas of paving at the end of working periods, except within 1 m of unrestrained edges. Checks paving after compacting first few metres, then at frequent intervals to ensure that surface levels are as specified; if they are not, lift blocks/pavers and relay. Brush sharp sand into joints, revibrate surface and repeat as required to completely fill joints. Make sure that paving is held by a kerb on both sides before vibration to avoid uneven joints. Avoid damaging kerb haunching and adjacent work during vibration. Do not begin vibration until kerbs have matured. The paving pattern will be stretcher bond, make sure that the joints will be in straight line after vibrating. Also ensure joints are off equal width. The block pavement shall have a surface regularity/ flatness tolerance of less than 10 mm under a 3 m straight edge.

Sample: Before placing orders submit representative samples for approval.
Ensure that delivered materials match sample.

PRECAST CONCRETE FLAGS
Pre-cast Concrete Flags:
1. Precast concrete flags shall be laid to the requirements of BS 7533 Part 4.
Note the following selected items from BS 7533, Part 4.
• The difference in level between two adjacent flags should not exceed 3 mm.
• The top surface of the paving units should stand 3 - 6 mm above the drainage channel.
• A 30 - 50 mm (compacted thickness) of the sand laying course is given as suitable (for narrow joints)
2. Flags should be laid with narrow joints (2 - 5 mm).Joints should be filled with dried sand (conforming to table 4 of the code), or as determined by the Landscape Architect.

KERBS
Kerbing General: Kerb radii shall be in accordance with Architects and Engineers drawings. Use radius kerbs for all new kerbs.

Laying Generally:
Natural stone and precast concrete kerbs shall meet the requirements of BS 435 and
BS 7263-1.
1. Precast concrete kerbs shall be laid to the requirements of BS 7533, Part 6.
2. Units shall be laid on fresh concrete or mortar bed and adjusted to line and level.
3. Concrete for foundations and haunching shall be to BS 5328.
4. Bedding mortar shall be freshly mixed, moist 3:1 sand-cement between 12 and 40
mm thick.
5. Kerbs shall be backed with concrete as per drawing.
6. Radius kerbs shall be used on radii of 12 m or less.
7. Kerbs should not deviate from the required level by more than 6mm.
8. Kerbs should not deviate by more than 3 mm under a 3 m straight edge.
9. Open-jointed kerbs should have joints of 2 - 4 mm wide.

Mortar jointed kerbs should have joints of 7 - 10 mm wide filled completely with 3:1 sand-cement mortar, and finished to give a smooth flush joint or as specified by the Landscape Architect.

APPENDIX 3 - PROGRAMME FOR IMPLEMENTATION, MAINTENANCE + DEFECTS PERIOD

5.0 Maintenance:

5.1 Period:

The Contractor shall be responsible for aftercare of the completed works for 1 Year from the date of completion of planting. Subject to satisfactory performance the maintenance contract may be extended for two further periods of 12 months. Maintenance in years 2 and 3 shall be provisional. Maintenance during years 2 and 3 may be assigned directly to the Board Of Management of the school. This will include grass cutting, weed control of all planted areas, litter clearance and watering of Select Standard trees during dry weather.

5.2 Organisation:

The aftercare programme will be organised as follows:-
(1) Scheduled operations, in whose timing the contractor will be permitted some flexibility and which will be the basis of payment to the Contractor.
(2) Performance standards, which the Contractor is required to meet at all times, and on which his performance will be assessed.
(3) Critical dates, by which time scheduled operations, shall have been completed, and at which performance will be assessed.

5.3 Performance standards:

Shrub, woodland and hedgerow planting to be maintained in accordance with specifications e.g. spraying, firming, tree tie adjustment. Weeds shall not cover more than 20% of the ground surface within planting areas and the maintained 1m diameter weed free circles at any time, and neither shall they exceed 100mm in height. Weeds shall be treated before they establish.

Within grass areas noxious and competitive weeds shall not be allowed to establish and all perennial weeds shall be spot treated at each maintenance visit, 3 times per year.

5.4 Watering:

The contractor is responsible for the survival of all plants during the maintenance period. Apply water to moisten full depth of root run using proprietary irrigation system. Avoid washing or compaction of the soil surface. The Landscape Contractor is responsible for informing the Landscape Architect if the plants require watering. A minimum of 16 no. waterings year1, 8 no. year 2, 4 no. year 3. Prior notification to the landscape architect and a record of attendance will be requested for each visit. Spot checks will be made to ensure full compliance with this condition.

5.5 PROGRAMME

Year One (After Planting): Period of 12 months from date of practical completion

5.5.1 By end of May (Year One):
Application of herbicide agreed with Landscape Architect to all planting areas. Protect all plants. Hand weed all large weeds too close to nursery stock for safe treatment. Strim long grass prior to spray application. Provision for 1 no. visit for spot weed control application to areas where perennial weeds are apparent in the grass sward. Tip prune, firm plants. Grass cutting. All necessary cultural/husbandry methods to be completed in order to leave the sites in a clean, orderly and tidy manner. Water select standard trees.
Critical date: 30 May (Year One)

5.5.2 By end August (Year One):
Application of herbicide agreed with Landscape Architect to all planting areas. Protect all plants. Hand weed all large weeds too close to nursery stock for safe treatment. Provision for 1 no. visit for spot weed control application to areas where perennial weeds are apparent in the grass sward. All necessary cultural/husbandry methods to be completed in order to leave the sites in a clean, orderly and tidy manner. Grass cutting. All necessary cultural/husbandry methods to be completed in order to leave the sites in a clean, orderly and tidy manner. Water select standard trees.
Critical Date: 30 August (Year One)

5.5.3 October (Year One):
Remove dead plants after Landscape Architect's inspection.

5.5.4 November (Year One):
Replacement planting. Tree care shall mean pruning deciduous trees including those of hedgerow form when dormant to promote open frame works in the crown. Remove all suckers and dead branches, and branches that are encroaching on to footpaths should be cut back to point of branching.

5.5.5 By end December:
Application of herbicide agreed with Landscape Architect to all planting areas. Grass cutting. All necessary cultural/husbandry methods to be completed in order to leave the sites in a clean, orderly and tidy manner. Water extra heavy standard trees, standard trees.
Critical Date: 30 December (Year One).

5.5.6 Year 2

As year 1.

5.5.7 Year 3

As year 1 . Hedgerow to be fully pruned at end of season.

5.5.8 Sweeping and Cleaning

Sweeping shall mean sweeping of the footpaths, playing courts, car parks and the schools road network and removal of all grit rubbish moss and leaves, keeping the hard landscaped areas of the site in a neat and tidy manner. Number of sweepings per annum -12no.

APPENDIX 3 - PROGRAMME FOR IMPLEMENTATION, MAINTENANCE + DEFECTS PERIOD

Cleaning shall mean the removal of paper, plastic bags and all other rubbish from grassed areas, roads, car parks, playing courts, shrubbery's, hedging etc. or any part of the school grounds. This operation shall be carried out twice a month.
All dirt and rubbish to be removed off site to a tip to be provided by the Landscape contractor.
Autumn leaves shall be swept on a weekly basis from end of October to mid-November (three weeks). Any additional cleaning and sweeping deemed necessary, during the year, and requested by the school for any part of the schools grounds will be paid for at a pro rata basis to the rates for the programmed maintenance schedule.

5.5.9 Other Maintenance Works
All grassed areas are to be edged 3 times a year using a machine and are not to be sprayed.
Carry out any other maintenance to ensure the works are kept in a satisfactory state during the defects liability period.

5.6 Grass Cutting

Grass cutting shall be deemed to include for:
[a] Removal of lodged grass.
[b] Removal and disposal of grass cuttings from adjoining roads and paving.
[c] Removal and disposal of stones and other obstructions from area of grass to be cut.

high profile grassed areas, eg. central gardens are to be Fine cut. Fine cutting shall mean mowing to 25mm high. This operation is to be carried out in each location shown on the landscape drawings and in locations as directed on site by a representative of the management team. A rough schedule is as follows-
March: 1cut
April: 3 cuts
May: 4 cuts
June: 4 cuts
July: 4 cuts
August: 4 cuts
September: 4 cuts
October: 4 cuts
November - February: 1 cut
Total 29 cuts

Fine cutting shall be deemed to include for grass cut to 25mm high evenly over the whole area, with cuttings left evenly spread over the surfaces. Grass not to exceed 50mm between cuts.

Other grass areas of which are less high profile are to be cut 16 times a year. These will include the grassed areas around the woodland areas, in between the pitches and any grassed area hidden from the main road by the school.

Areas indicated as wildflower mix shall be cut three times per annum. Cuts shall be carried out at specified times as agreed with landscape architect and recommended by the wildflower seed producer. Remove cuttings after each cut and remove offsite to tip.

Leave cuttings evenly spread. This operation is to be carried out in each location shown on the landscape drawings and in locations as directed on site by a representative of the Board Of Management.

At every second grass cut, grass shall be trimmed from around the base of walls and fences, back of footpaths and kerbs, litter bins, sluice valves and hydrant markers, trees, shrubberies poles and public lighting columns etc., and kept in a neat and tidy condition.

The contractor shall apply a broad spectrum weed killer, once a year, mid April, at the recommended application rate, to control weeds in the grassed areas during the growing season. In addition, 1 no. applications of herbicide to kill off clover in the grass areas shall be applied in April in line with approved herbicides under current legislation.

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